CLAIMS

1. A method of packaging an integrated circuit die, comprising the steps of:

forming a plurality of soft conductive balls in a fixture, wherein opposing sides of the balls are at least partially flattened;

transferring the formed balls from the fixture to a mold masking tape;

attaching a first side of an integrated circuit die to the mold masking tape, wherein a second side of the die has a plurality of die bonding pads and wherein the die is surrounded by the formed balls;

electrically connecting the die bonding pads to respective ones of the formed balls surrounding the die;

encapsulating the die, the electrical connections, and a top portion of the formed balls with a mold compound; and

removing the mold masking tape such that a bottom portion of the balls is exposed.

2. The method of packaging an integrated circuit die of claim 1, wherein the balls formed in the fixture are spherical.

3. The method of packaging an integrated circuit die of claim 1, wherein the balls formed in the fixture are generally rectangular.

4. The method of packaging an integrated circuit die of claim 1, wherein balls forming step includes a mechanical coining step in at least two opposing sides of the balls are at least partially flattened.

5. The method of packaging an integrated circuit die of claim 1, wherein an array of balls is formed in the fixture.

6. The method of packaging an integrated circuit die of claim 1, further comprising the step of attaching the mold masking tape to a frame.

7. The method of packaging an integrated circuit die of claim 1, wherein the die attaching step comprises attaching the first side of the die to a plurality of the balls with a die attach adhesive.

8. The method of packaging an integrated circuit die of claim 1, wherein the electrically connecting step comprises wirebonding the die bonding pads to the respective ones of the balls with a corresponding plurality of wires.

9. The method of packaging an integrated circuit die of claim 8, wherein in the wirebonding step, the wires penetrate into the balls and are embedded therein.

10. The method of packaging an integrated circuit die of claim 9, wherein the wires are formed of copper, gold, or an alloy thereof.

11. The method of packaging an integrated circuit die of claim 10, wherein the balls are formed of a metal that is softer than the wires so that the wires can be embedded into the balls.

12. The method of packaging an integrated circuit die of claim 11, wherein the metal comprises solder or gold.

13. The method of packaging an integrated circuit die of claim 1, further comprising the step of saw singulating the encapsulated die from adjacent encapsulated dice.

14. A method of packaging a plurality of integrated circuit dice, comprising the steps of:

forming a plurality of soft conductive balls in a fixture, wherein opposing sides of the balls are at least partially flattened;

transferring the formed balls from the fixture to a mold masking tape;

attaching first sides of the plurality of integrated circuit dice to the mold masking tape, wherein a second side of the dice have a plurality of die bonding pads and wherein each of the die is surrounded by some of the formed balls;

electrically connecting the die bonding pads of the dice to respective ones of the formed balls surrounding the dice;

encapsulating the dice, the electrical connections, and a top portion of the formed balls with a mold compound;

removing the mold masking tape such that a bottom portion of the balls is exposed; and

singulating the encapsulated dice to form individual packaged devices.

15. The method of packaging an integrated circuit die of claim 14, wherein the balls formed in the fixture are spherical.

16. The method of packaging an integrated circuit die of claim 14, wherein the balls formed in the fixture are generally rectangular.

17. The method of packaging an integrated circuit die of claim 14, wherein balls forming step includes a mechanical coining step in at least two opposing sides of the balls are at least partially flattened.

18. The method of packaging an integrated circuit die of claim 14, wherein an array of balls is formed in the fixture.

19. The method of packaging an integrated circuit die of claim 14, further comprising the step of attaching the mold masking tape to a frame.

20. The method of packaging an integrated circuit die of claim 14, wherein the dice attaching step comprises attaching the first side of the dice to a plurality of the balls with a die attach adhesive.

21. The method of packaging an integrated circuit die of claim 14, wherein the electrically connecting step comprises wirebonding the die bonding pads to the respective ones of the balls with a corresponding plurality of wires.

22. The method of packaging an integrated circuit die of claim 21, wherein in the wirebonding step, the wires penetrate the balls and are embedded therein.

23. The method of packaging an integrated circuit die of claim 22, wherein the wires are formed of copper, gold, or an alloy.

24. The method of packaging an integrated circuit die of claim 23, wherein the balls are formed of a metal that is softer than the wires so that the wires can be embedded into the balls.

25. The method of packaging an integrated circuit die of claim 24, wherein the metal comprises solder or gold.